InviLink 11Mb Wireless LAN PC Card

User guide

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Original Issue: September 2000

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Model Number : _____

Serial Number: _____

Purchase Date: _____

Place of Purchase: _____

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Notices

Important information

- The InviLink 11Mb Wireless LAN PC Card is licensed for use from Lucent ORiNOCO technologies.

- The InviLink 11Mb Wireless LAN PC Card supports Microsoft Windows 98, Windows 95, and Windows 2000 operating systems.

- If you wish to install the InviLink 11Mb Wireless LAN PC Card under Microsoft Windows Millenium Edition, use the drivers for Windows 98 and Windows 2000.

- Subject to the radio regulations that apply in your country, the InviLink 11Mb Wireless LAN PC Card may support a different set of 2.4 GHz channels (see the table on page 43). Consult an authorized reseller or Acer sales office for more information.

- If you are not using the PC Card for wireless communication, extend its life by storing it in a dry place.

- To clean the PC Card, gently wipe it with a soft (damp) cloth.

- Wireless interoperability

  This product is designed to be interoperable with any wireless LAN product that is based on Direct Sequence Spread Spectrum (DSSS) radio technology, and is compliant to the IEEE 802.11 Standard on Wireless LANs (Revison B), as defined and approved by the Institute of Electrical and Electronics Engineers.

- The InviLink 11Mb Wireless LAN PC Card and your Health

  The InviLink 11Mb Wireless LAN PC Card, like other radio devices, emits radio frequency electromagnetic energy. The level of energy emitted by this equipment however is far much less than the electromagnetic energy emitted by wireless devices like, for example, mobile phones. Because this device operates within the guidelines found in radio frequency safety standards and recommendations, Acer believes this device is safe for use by consumers. These standards and recommendations reflect the consensus of the scientific community and result from deliberations of panels and committees of scientists who continually review and interpret the extensive research literature. In some situations or environments, the use of the InviLink 11Mb Wireless LAN PC Card may be restricted by the proprietor of the building or responsible representatives of the organization. These situations may for example include:

  - Using the InviLink 11Mb Wireless LAN PC Card equipment on board airplanes, or

  - In any other environment where the risk of interference to other devices or services is perceived or identified as harmful. If you are uncertain of the

policy that applies on the use of wireless devices in a specific organization or environment (e.g., airports), you are encouraged to ask for authorization to use this device prior to turning on the equipment.

Regulatory information

The InviLink 11Mb Wireless LAN PC Card must be installed and used in strict accordance with the manufacturer's instructions. This device complies with the following radio frequency and safety standards.

Canada - Industry Canada (IC)

This device complies with RSS 210 of Industry Canada

Europe - EU Declaration of Conformity

This device complies with the specifications listed below, following the provisions of the EMC Directive 89/336/EEC:

* ETS 300-826 General EMC requirements for Radio equipment
* ETS 300-328 Technical requirements for Radio equipment

USA - Federal Communications Commission (FCC)

This device complies with Part 15 of FCC Rules. Operation of the device in a system is subject to the following two conditions:

* This device may not cause harmful interference.
* This device must accept any interference that may cause undesired operation.

Interference statement

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

* Reorient or relocate the receiving antenna
* Increase the separation between the equipment and receiver
* Connect the equipment to an outlet on a circuit different from that to which the

receiver is connected

- Consult the dealer or an experienced radio/television technician for help

Acer is not responsible for any radio or television interference caused by unauthorized modification of the devices included with this 802.11b Kit, or the substitution or attachment of connecting cables and equipment other than that specified by Acer. The correction of interference caused by such unauthorized modification, substitution or attachment will be the responsibility of the user.

About
InviLink

This chapter describes wireless network concepts and how InviLink helps you get started.

▶ Kit contents

The InviLink PC Card kit includes the following:

- One InviLink PC Card

- Software CD-ROM

- This user guide (also available on the sotware CD-ROM in Adobe Acrobat PDF format)

If any of the items appear to be damaged or missing, contact your supplier.

About the PC Card

The InviLink PC Card functions like any standard wired Ethernet card, but InviLink does not need any wires!

An Ethernet card requires a cable connection to a hub and/or patch panel, the cable physically ties you down to the location of the wired connection. InviLink allows you to connect your computer to a Local Area Network (LAN) system from anywhere within the wireless coverage area. Expanding or re-designing your network is easy by adding or relocating access points and powering up your new InviLink-enabled computers.

Unlike Ethernet, InviLink will enable you to roam throughout the network while remaining connected to the LAN.

Note: The InviLink PC Card is a radio product. Refer to the notices section on page vi for regulatory information that may apply in your country.

The PC Card fits into any standard Type II PC Card slot. It has two LED indicators and two integrated antennas.
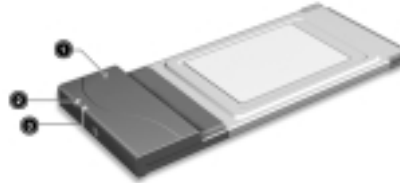
1.   Integrated antennas

2.   Transmit/Receive LED

   •   Off - No wireless activity

   •   Blinking - Sensing/transmitting wireless data

3.   Power ON/OFF LED

   •   Solid Green - standard operational mode

   •   Blinking Green - power management mode

Features

•   Fully compliant with the IEEE 802.11 standard on wireless LANs (revision B)

•   Fully compatible with any other wireless LAN system based on Direct Sequence Spread Spectrum (DSSS) radio technology that complies wth the IEEE 802.11b standard

•   Supports data rates up to 11 Mbit/s

•   Automatic transmit rate select mechanism in the transmit range of 11, 5.5, 2 and 1 Mbit/s

•   Frequency channel selection (2.4 GHz)

•   Roaming over multiple channels

•   Card power management

•   Wired Equivalent Privacy (WEP) data encryption, based on the 64 bit RC4 encryption algorithm as defined in the IEEE 802.11 standard on wireless LANs

About the software CD-ROM

If you wish to install the driver software, go to the chapter on installation on page 7 and follow the instructions described.

This user guide is also available on the software CD-ROM in Adobe Acrobat PDF format. The Adobe Acrobat Reader software is also available on the the software CD-ROM.

Note: It is the policy of Acer to improve products as new technology, components, software and firmware become available. Before you proceed with the installation of this product, we recommend you to consult the website http://www.acersupport.com to: (1) verify if newer versions of the software that was shipped with your product are available, and (2) download and install the latest software with your purchased product.

▶ Network scenarios

The InviLink PC Card kit enables you to:

- Connect your computer to a Peer-to-Peer workgroup of wireless computing devices.

- Connect your computer to a Local Area Network (LAN) infrastructure that includes access points, or other IEEE 802.11 compliant LAN systems.

Peer-to-Peer workgroup

The Peer-to-Peer workgroup configuration enables you to quickly set up a small wireless workgroup, where the workgroup participants can exchange files using features like "File and Printer Sharing" as supported by Microsoft Networking.

You can use this option to set up a temporary or ad-hoc network in environments where no access points are available (for example, in Small Office/Home Office (SOHO) environments).

As long as the stations are within range of one another, this is the easiest and least expensive way to set up a wireless network.

Enterprise networking
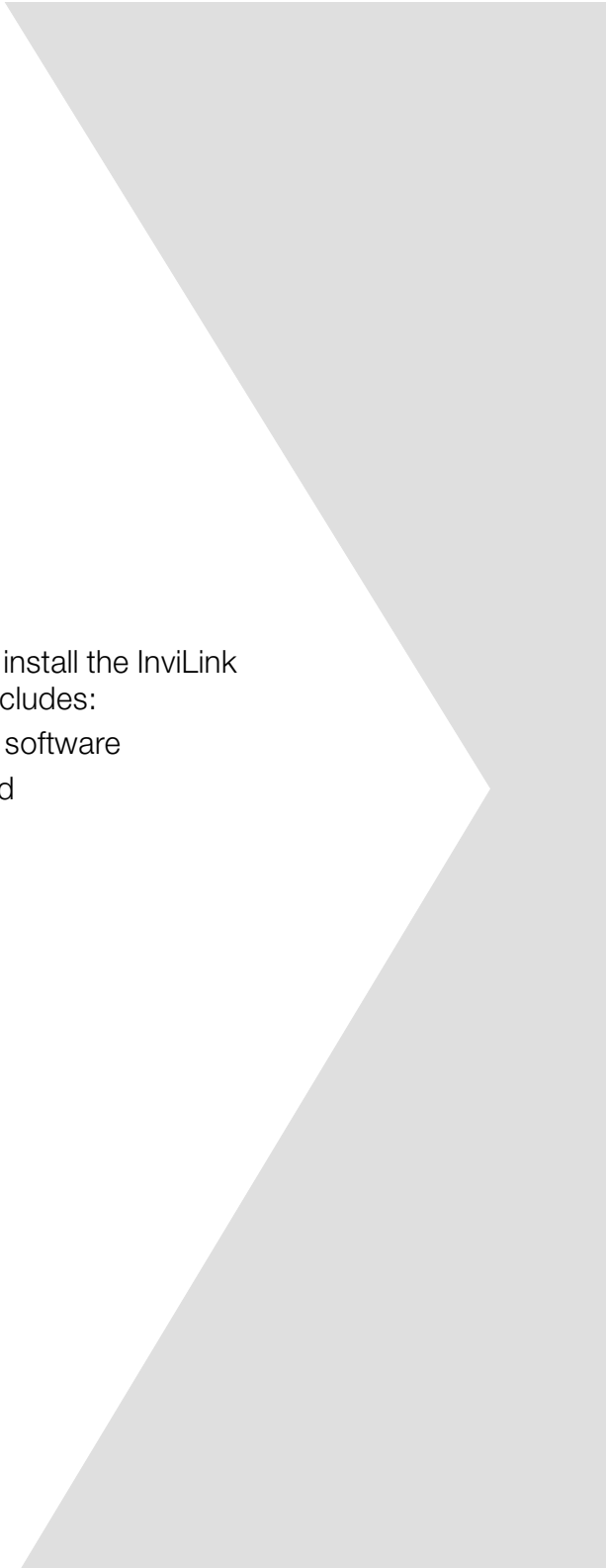
With an access point, you can connect to a corporate Local Area Network (LAN) infrastructure to have wireless access to all network facilities.

LAN infrastructures may either be:

- Stand-alone wireless LANs, or

- Wireless network infrastructures connected to an exisitng Ethernet network

Installation for
Windows

This chapter describes how to install the InviLink
PC Card for Windows. This includes:

- Installing the Client Manager software

- Inserting the InviLink PC Card

- Installing the drivers

- Setting basic parameters

- Finishing the installation

▶ Installing the Client Manager software

The Client Manager program is a software tool that you can use to check the quality of your network connection.

> �}- -
>
> **Note:** It is not mandatory to install the Client Manager program in order to establish a network connection, but it provides you with more options to: (1) view/change the settings of your network connection, and (2) monitor your network connection.

To install the Client Manager software, do as follows:

1. Insert the software CD-ROM that came with your PC Card kit in your CD-ROM drive.

    Your operating system will automatically start the CD and run the installation program.

    > ☺- -
    >
    > **Note:** If the CD-ROM does not start automatically, click on **Start**, then **Run...**. Browse the CD-ROM and run the "setup.exe" file.

2. Follow the instructions on the screen.

▶ Inserting the InviLink PC Card

Insert the PC Card into the PC Card slot of your computer.

▶ Installing the drivers

Before you begin

Before you start the installation, you are advised to keep the Windows CD-ROM or software diskettes close at hand. If your computer came with a factory-installed Windows operating system, these files will be stored on your computer's hard disk, in the form of cabinet (*.cab) files.

What you need to know

Installing an InviLink PC Card requires the same level of expertise that you would need to install a standard Ethernet network adapter card. It is assumed that you have a working knowledge of standard Windows 95, Windows 98 or Windows 2000 operations and of installing network adapter cards. Refer to Windows help when necessary (on the Windows taskbar, click on **Start**, then click on **Help**).

Driver installation

Microsoft Windows 95, Windows 98 and Windows 2000 operating systems support "Plug & Play" for PC Cards. Once you insert the InviLink PC Card into your computer, these operating systems will automatically:

- Detect the card, and enable the driver, or
- Start the **Add New Hardware** wizard and prompt you to install the driver if then operating system cannot find the required driver.

  This would typically occur when inserting the PC Card into your computer for the very first time.

  Note: The very first time you insert the PC Card, it may take several minutes for the card to be detected.

To install the driver, do as follows:

1. If Windows starts the Add New Hardware wizard, follow the instructions of the New Hardware Found wizard to install the drivers.

    When you are prompted to locate the driver installation files:

    - Select the CD-ROM that was included with your PC Card kit, or

- • If you downloaded the drivers from the website (http://www.acersupport.com), navigate to the folder that matches your operating system.

  Windows 95: D:\Drivers\Win_95
  Windows 98: D:\Drivers\Win_98
  Windows 2000: D:\Drivers\Win_2000

  When finished installing the drivers, Windows automatically opens the **Add/Edit Configuration Profile** window.

2. Set the basic parameters as described on page 13.

> **Note:** If your computer does not detect the new hardware, consult the chapter on troubleshooting beginning on page 31.

Windows network properties

If this is the very first time that networking support is installed on your computer, the Windows operating system will prompt you to enter a computer and workgroup name. These names will be used to identify your computer on the Microsoft Network Neighborhood.

> **Note:** The Network properties window will not appear if network support has not been installed. If so, proceed to page 13 and proceed with setting the basic parameters.

1. The **Network** window will pop-up automatically (go to the Identification tab).

2. In the **Computer Name** field, enter a unique name for your computer.

3. In the **Workgroup** field, enter the name of your workgroup.

4. (Optional) Provide a description of the computer in the **Computer Description** field.

For more information about setting your Windows network properties, consult your Windows documentation or Windows help.

▶ Setting basic parameters

After installing the drivers, Windows will open the Add/Edit Configuration Profile window for your PC Card.

This window enables you to specify one or more network connection profiles. For example, you can setup profiles for:

- Office - to connect to an Enterprise Network via an access point
- Workgroup Computing, to share files with colleagues or friends in small Peer-to-Peer workgroups without an access point

For more information about the different types of networks, refer to "Network scenarios" on page 6.

To connect your computer to a wireless network, you will need to:

1. Assign a name to the network connection profile.
2. Use the pull-down menu on the right to select how you wish to connect to the wireless network.
3. Click the **Edit Profile** button to view/modify the parameters for the selected profile.

For first-time installations, you are advised to setup the single profile using only the Basic Settings.

Note: The number and type of parameters you need to specify may differ according to the selected connection type. See "Basic settings for enterprise networks" on page 13 for access point connection settings.

For information about various options, click the **Help** button.

Basic settings for enterprise networks

If you wish to connect to an enterprise network, use the Add/Edit Configuration Profile window to:

- Select to connect to an **Access Point**.
- Set the correct **Network Name**.

1. In the field Network Name, define the name of the wireless network to which you want to connect. You can either use:

- • The value "ANY" - to connect to any wireless network in the vicinity of your computer.

- • An "exact" value to connect to - consult your LAN administrator for the value that applies to your network.

   The Network Name can be any alphanumeric string in the range of "a" to "z", "A" to "Z" and "0" to "9" with a maximum of 32 characters (case-sensitive).

2.   Click on **OK** to confirm and return to the Add/Edit Configuration Profile window.

3.   Click on **OK** again to finish with the installation shown on page 15.

The Edit Configuration window also provides you the possibility to change other parameters (Encryption, Advanced, and Admin parameters). These parameters are described in the chapter on advanced configuration on page 25.

You are advised to leave these parameters to their default settings, unless there are special situations, for example, upon the advice of an wireless network expert.

Basic settings for peer-to-peer workgroups

If you wish to connect to a Peer-to-Peer workgroup, use the Add/Edit Configuration Profile window to:

- • Select to connect to a **Peer-to-Peer Group**

- • Set the correct **Network Name** and **Encryption Key**

1.   In the field Network Name, define the name of the wireless network to which you want to connect.

   The Network Name can be any alphanumeric string in the range of "a" to "z", "A" to "Z" and "0" to "9" with a maximum of 32 characters (case-sensitive).

- • If there is already a Peer-to-Peer group with this name available, your computer will automatically connect to this workgroup.

- • If there is no group with this name yet, your computer will automatically start one with this name.

2.   Click on **OK** to confirm and return to the Add/Edit Configuration Profile window.

3.   Click on **OK** again to finish with the installation as described on page 15.

▶ Finishing the installation

When you have finished setting basic parameters, click on the **OK** button to close the Add/Edit Configuration window and proceed with the installation process. Windows will finish building the driver configuration database and copy some files to your computer's hard disk.

- If the Windows operating system prompts you to identify the location of the Windows files, specify the drive and directory of the Windows Installation CD-ROM or diskettes.

- If you've installed a PC Card on your computer before, most of these files are already available on your hard disk drive. If you do not have the Windows CD-ROM available, you may try replacing the proposed path in the Copy Files From dialog box with: "C:\Windows\System" or "C:\Windows".

  - if installing from the software CD-ROM, specify the drive in one of the following directories on the CD-ROM:

    Windows 95: D:\Drivers\Win_95
    Windows 98: D:\Drivers\Win_98
    Windows 2000: D:\Drivers\Win_2000

  - if installing files that you downloaded from the Internet, point to the disk drive or directory where you saved the downloaded files.

After Windows finishes copying the files, it will prompt you to restart your computer. Click on **OK** to restart your computer.

After restarting your computer

After you have restarted your computer, Windows will detect the PC Card (you can hear the two-tone sound of the PC Card socket controller), and load the driver. In a dialog box, enter a Windows user name and password. The password you enter here will be the one used to login to Windows Network Neighborhood.

Verifying the installation

To verify if the installation of the drivers was completed successfully:

- Check if the PC Card icon on the Windows taskbar is visible.

- Check the LEDs on your PC Card. The following should be visible.

- • A steady green power LED to indicate the PC Card is active

- • A flickering green Transmit/Receive LED to indicate wireless
  activity while transmitting data.

For other LED behavior, see the the chapter on troubleshooting beginning
on page 31.

- • (Optional) To check the quality of the network connnection, install the
  Client Manager program as described on page 9.

Working with InviLink
and Windows

This chapter provides general information about:
- using your PC Card
- viewing other computers
- viewing wireless link quality
- viewing/modifying PC Card settings
- finding more information

▶ Using your PC Card

Radio Antennas

The built-in radio and antennas of your InviLink PC Card perform best in an open environment with as few obstacles as possible. To achieve the maximum range for wireless communications do not cover the card with objects such as books or thick stacks of paper.

Removing the PC Card

If you do not need the wireless connectivity of your PC Card, you can remove the PC Card from its slot.

> **Caution:** When removing the PC Card, you will lose your connection to the network. Prior to removing the PC Card, make sure you have closed all files and network applications (such as e-mail).

You are advised to always disable the PC Card prior to removing the card from the PC Card slot. This will allow the Windows operating system to:

- Log off from the network server
- Disable the PC Card driver
- Disconnect power to the PC Card slot (which will extend battery life for mobile computers)

To stop the PC Card:

1. Click once on the PC Card icon on the right side of the taskbar.
2. Select the option **Stop ORiNOCO PC Card**.
3. Wait a few seconds until the operating systems displays a pop-up message to indicate you can safely remove the PC Card.

> **Note:** Alternatively, disable the PC Card via the PC Card icon in the Control Panel.

▶ Viewing other computers

When multiple stations are up-and-running in your wireless network, you can use the procedure described below to display the other computers:

1. Start **Windows Explorer**.

2. Scroll down the list of files and folders to look for the item **Network Neighborhood**.

3. Double-click on **Network Neighborhood** to display all stations in your Microsoft Networking Group.

4. To display other workgroups in the network environment, double-click on **Entire Network**.

If you cannot find other wireless networked computers, verify whether they are:

- powered up and logged on to the network

- configured to operate with identical Microsoft Network settings concerning:

  - networking protocol

  - wireless network name

  - workgroup name

To view or modify the Station Name or Workgroup of your computer, proceed as follows:

1. Click on **Start, Settings**, then click on **Control Panel**.

2. Double-click on **Network**.

3. In the Network Settings window, select the **Identification** tab.

4. You can verify and change the **Station Name** or **Workgroup** parameters.

Note: You have to restart your computer before changes to the Network Settings will take effect.

To verify the radio connection with other stations refer to "Viewing wireless link quality" on page 22.

▶ Using the Client Manager

If you installed the Client Manager software as described in "Installing the Client Manager software" on page 9, you can use the Client Manager to:

- verify the quality of your wireless connection to the network
- view/modify the configuration settings of you wireless PC Card

The Client Manager will start automatically every time you power up your computer.

The Client Manager icon is displayed in the system tray of the taskbar, indicating that the Client Manager program is running.

- Click the icon once to retrieve a more detailed status overview.
- Right-click the icon to display a menu with more options.

Viewing wireless link quality

You can use the Client Manager icon on the taskbar to verify the link quality of your network connection.

An overview of all possible icons is given in the following table. When the Client Manager con is not indicating excellent or good radio connection, act as described.

Icon	Description	Color
	Excellent radio connection	Green
	Good radio connection	Green
	Marginal radio connection: The radio signal is weak. Move closer to the access point.	Yellow
	Poor radio connection: The radio signal is very weak. Save your files and move closer to the access point.	Red

Icon	Description	Color
	No radio connection because: Looking for initial connection, or you have moved out of range of the network.	Red
	Peer-to-peer network connection	Blank

Viewing/modifying PC Card settings

If you would like to view or modify your networking parameters, for example, because you would like to connect to another network or type of network, proceed as follows:

1. Right-click on the Client Manager icon on the Windows taskbar.

2. From the menu, select **Configuration Profile** and select:

    *   Add/Edit Profile - to add a new profile or to modify an existing profile

    *   One of the existing profiles (if present) - to select a profile without viewing or modifying the settings

    After selecting another profile, the PC Card will use the selected profile to connect to the wireless network.

If your Client Manager icon is not visible, you have to start the Client Manager program again:

Click on **Start**, **Programs**, **ORiNOCO**, then click on **Client Manager**.

Alternatively, you can change the PC Card configuration via the Control Panel:

1. Click on **Start**, **Settings**, then click on **Control Panel**.

2. Double-click **ORiNOCO PC Card**.

3. (Optional) Change the parameters you would like to modify, and click on:

    *   **OK** - to confirm your changes, or

    *   **Cancel** - to ignore your modifications
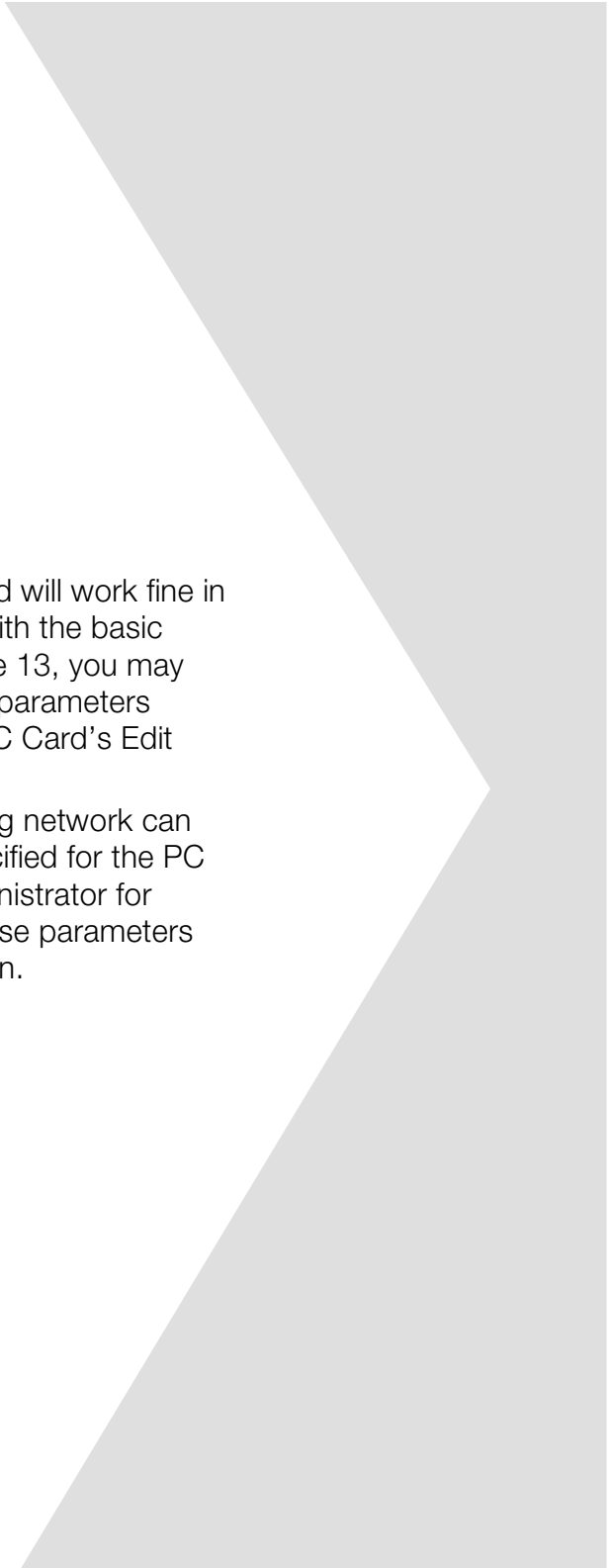
▶ Finding more information

If you are looking for more information than contained in this user guide, please consult one of the following options:

- The website **http://www.acersupport.com** - for more information and driver updates

- The online help system of your wireless system - for information about software and driver functionality.

- To view the online help system, click the **Help** button in the software driver or application window.
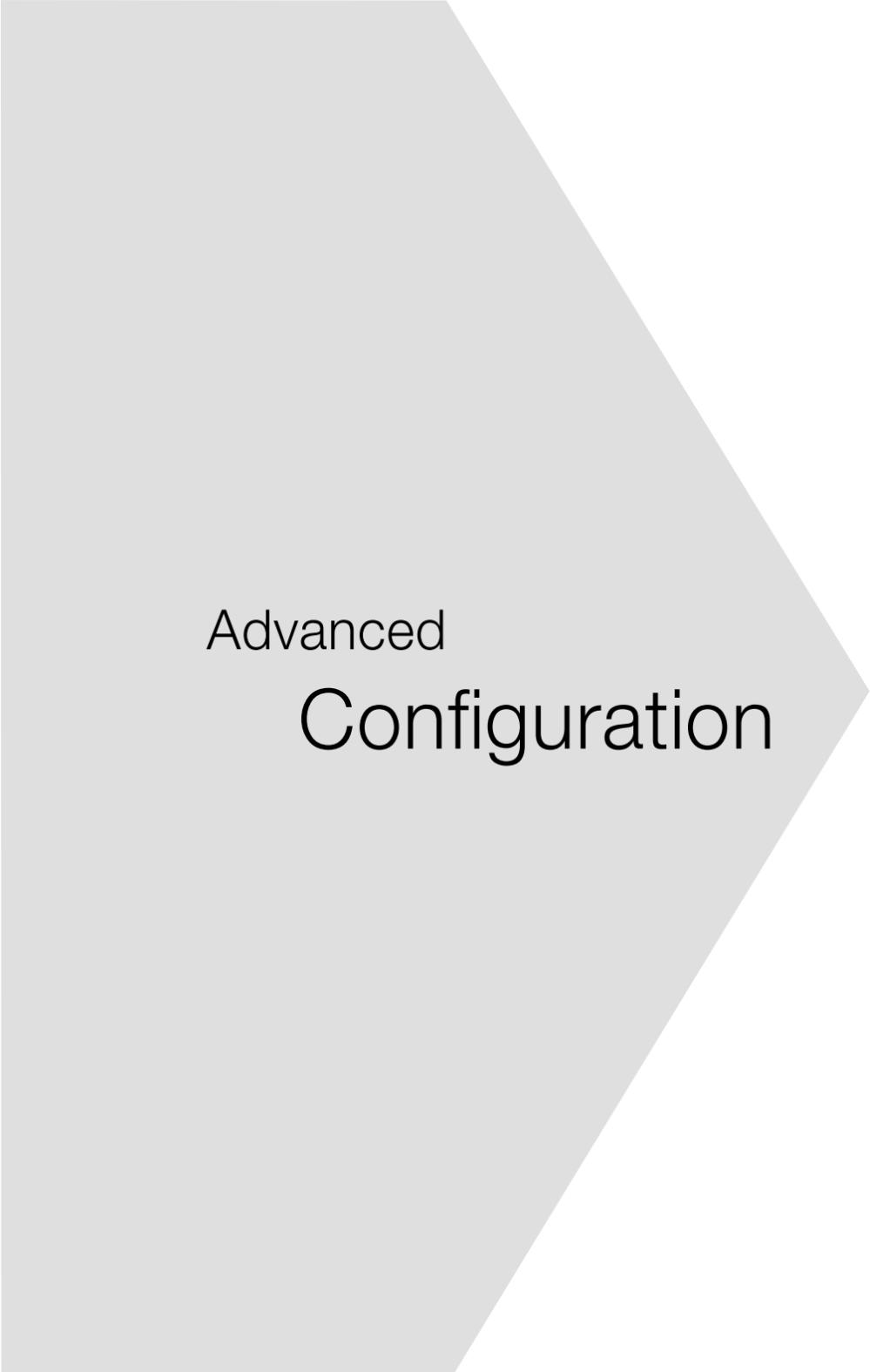
Advanced
Configuration

Although your InviLink PC Card will work fine in most network environments with the basic parameters described on page 13, you may wish to explore the advanced parameters options as displayed on the PC Card's Edit Configuration windows.

Only if connected to an existing network can advanced parameters be specified for the PC Card. Consult your LAN administrator for information whether or not these parameters can be applied to your situation.

▶ Encryption parameters tab

The encryption tab enables you to define the encryption keys that your PC Card should use to:

• decrypt wireless messages received via its wireless interface

• encrypt data that will be transmitted via the wireless interface

Caution: Encryption needs to be the same for all stations.

You can identify up to 4 different key values to decrypt wireless data, and select one of these keys to encrypt wireless data transmissions.

For more information, consult your LAN administrator.

▶ Advanced parameters tab

On the advanced tab, you can adjust a number of parameters.

- Card Power Management - to extend the battery life of (mobile) wireless devices

- Interference Robustness - can be activated in exceptional cases when troubleshooting slow performance of the wireless network that could be related to in-band interference from items such as microwave ovens

- RTS/CTS Medium Reservation - can be activated (a) if density of access points is very low, or (b) as a result of poor network performance due to excessive frame collisions at the access points

For more information, consult your LAN administrator.

▶ Admin parameters tab
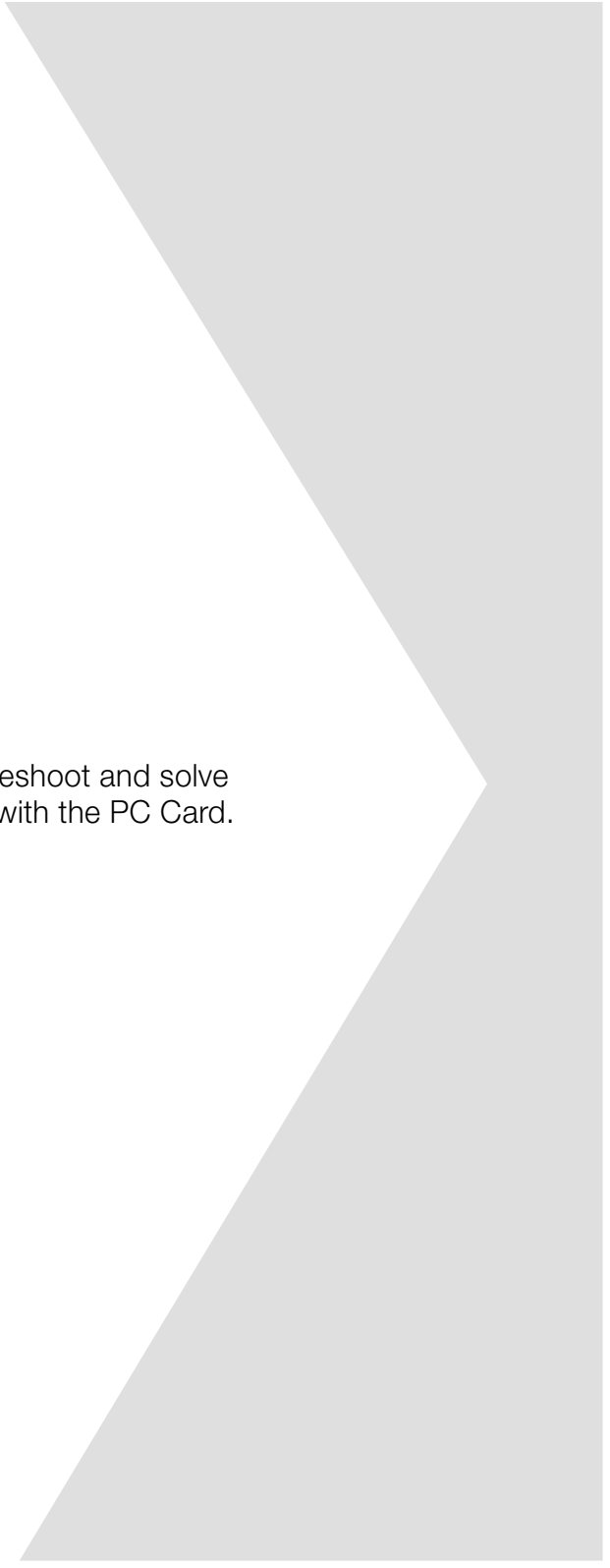
On the admin tab, the following parameters can be specified:

- Distance between Access Points - depending on the number of access points in a network, this parameter controls the network performance

- MAC Address - can be activated in exceptional cases when troubleshooting slow performance of the wireless network that could be related to in-band interference from items such as microwave ovens.

For more information, consult your LAN administrator.

Troubleshooting

Use this chapter to help troubleshoot and solve problems you may encounter with the PC Card.

▶ LED activity

If you encounter difficulty using and/or installing your InviLink PC Card, the error may be related to various causes:

*   Out-of-range situation, which prevents the PC Card from establishing a wireless connection with the network

*   Configuration mismatch, which prevents the PC Card from establishing a wireless connection with the (correct) network

*   Absense of, or conflict of the driver

*   A problem or conflict with the PC Card slot which prevents the PC Card from powering on

*   A conflict of the PC Card with another device.

The starting point to troubleshoot problems with your PC Card is to look at the the LED activity of the PC Card.

The table below provides an overview of the various modes of operation and the associated LED activity. This table also includes a number of troubleshooting hints, if required, that may help solve the problem.

Power LED	Transmit Receive LED	Description/Action
Continuous green	Blinking	Standard operational mode • Card is powered on • Sensing/transmitting wireless data
	Off	• Card is powered on • No wireless activity No action is required
Flicker	Flicker	Power management mode • Card is powered on, but set to power saving mode, to conserve battery life • Flashes indicates that the card wakes up at regular intervals to verify if there is wireless data addressed to your computer.

Power LED	Transmit Receive LED	Description/Action
Both LEDs blink once every 10 seconds		The PC Card works fine, but did not yet succeed in establishing a wireless connection with the wireless infrastructure. Actions: • Contact the LAN administrator to verify the network name assigned to the wireless infrastructure. • Contact the LAN administrator to verify the correct value(s) of the encryption keys. • Contact the LAN administrator to verify whether the network infrastructure has been closed. • Change the configuration of your PC Card to enter the correct network name. • If there are no access point devices available, change the configuration of your PC Card to run in "Peer-to-Peer" mode.
Off	Off	Card is not powered on, so it cannot transmit/receive data. The cause may either be: • No driver loaded/installed • Card - driver mismatch which prevented the driver from loading Actions: • Verify if a drivr has been installed, if not install the driver. • Verify th device settings of the PC Card to determine the occurrence of a conflict with another device. If so, change the settings of either your PC Card or the conflicting device to resolve the problem. • Verify the versions of the driver, and the embedded software in the PC Card (also referred to as Station firmware). • Consult the website at: **http://www.acersupport.com** to see if newer versions are available and if so, upgrade both the embedded software and driver to the latest available version.

▶ Cannot connect to the network

If your PC Card seems to be working fine, but you are not able to connect to the network, this error might be due to a configuration mismatch.

For example, if both LEDs of your PC Card blink once every ten seconds, the problem is likely to be caused by a configuration mismatch of:

• Network name

• Encryption key

Note: The Network name is case-sensitive.

If your access point devices have been configured with lower- and upper-case characters, the driver will not be able to establish a radio connection.

▶ LEDs work but cannot connect to the network

If you cannot connect to the network while the LEDs indicate that the network is operating properly (Power LED is on, Transmit Receive LED blinks), probably the TCP/IP settings of your network are not properly set.

> **Note:** Some older versions of Windows 95 operating system will not automatically install the necessary TCP/IP network protocol.

Changing TCP/IP settings

> **Note:** Consult your LAN administrator for the values of your TCP/IP settings.

To change the TCP/IP settings:

1. Click on **Start**, **Settings**, then click on **Control Panel**.

2. Double-click on **Network** to view the network properties.

3. From the list of installed components, check if the TCP/IP -> ORiNOCO PC Card protocol is installed.

   - If this protocol is not yet installed, click the **Add** button and select the TCP/IP protocol from the list. Refer to Windows Help for more information.

   - If this protocol is installed, select this protocol and click the **Properties** button. Check if the parameters resemble the settings provided by your LAN administrator. Make changes if necessary, and click **OK** when you are done.

4. When prompted, restart your computer.

For information about upgrading the drivers, please visit the following website: **http://www.acersupport.com**

Specifications

Included in this section are technical specifications of your PC Card.

▶ Card specifications

Item	Description
Form factor	PC Card Type-II Extended
Dimensions (L x W x H)	117.8 x 53.95 x 8.7 mm
Weight (PC Card)	45 g
Temperature • Operation • Transit • Storage	 0 to 55 degrees C -20 to 70 degrees C -10 to 60 degrees C
Humidity • Operation • Transit • Storage	 maximum humidity 95% 15 to 95% (no condensation allowed) 10 to 90% (no condensation allowed)
Power • Doze mode • Receive mode • Transmit mode • Power supply	 10 mA 180 mA 280 mA 5 V

Note: Although the PC Card may still operate in the range of -20 to 70 degrees C, operation outside the range of 0 to 55 degrees C may no longer be according to specifications.

▶ Networking characteristics

Item	Description
Compatibility	• IEEE 802.11 standard for wireless LANs (DSSS) • Wi-Fi (Wireless Fidelity) certified by the Wireless Ethernet Compatibility Alliance (WECA)
Networking operating system	• Novel Client 3.x & 4.x • Microsoft Windows Networking
Host operating system	• Microsoft Windows 95: NDIS3 Miniport Drive • Microsoft Windows 98 and 2000: NDIS5 Miniport Driver
Media access protocol	CSMA/CA (Collision Avoidance) with Acknowledgment (ACK)
Data rate	• High: 11 Mb/s • Medium: 5.5 Mb/s • Standard: 2 Mb/s • Low: 1 Mb/s The PC Card uses an automatic transmit rate select mechanism.

▶ Radio characteristics

Wireless communication is often subject to local radio regulations. Although the InviLink PC Card has been designed for operation in the license-free 2.4 GHz band, local radio regulations may impose a number of limitations to the use of wireless communication equipment.

> ⚡ **Warning!** Acer and its resellers or distributors are not liable for any damage or violation of government regulations that may arise from failing to comply with these guidelines.

Channel sets are identified by the following:

*   ETS for countries that adhere to the regulations as defined by the European Telecommunications Standard Institute (ETSI)

*   FCC for countries that adhere to the regulations as defined by the US Federal Communications Commission (FCC)

*   France

*   Japan

Below is a table describing the radio characteristics of the InviLink PC Card.

Item	Description	
R-F frequency band	**2.4 GHz (2400-2500 MHz)**	
Number of selectable sub-channels	North America (FCC)	11
	Europe (ETS)	13
	France	4
	Japan	1
	Other countries	FCC 11, ETS 13
Modulation technique	Direct Sequence Spread Spectrum • CCK for high and medium transmit rate • DQPSK for standard transmit rate • DBPSK for low transmit rate	

Item	Description			
Spreading	11-chip barker sequence			
Bit error rate (BER)	Better than 10^{-5}			
Nominal output power	15 dBm			
Range (100 bytes user data) / transmit rate	**High speed 11 Mb/s**	**Medium speed 5.5 Mb/s**	**Standard speed 2 Mb/s**	**Low speed 1 Mb/s**
Open office environment	160 m (525 ft.)	270 m (885 ft.)	400 m (1300 ft.)	550 m (1750 ft.)
Semi-open office environment	50 m (165 ft.)	70 m (230 ft.)	90 m (300 ft.)	115 m (375 ft.)
Closed office	25 m (80 ft.)	35 m (115 ft.)	40 m (130 ft.)	50 m (165 ft.)
Receiver sensitivity	-83 dBm	-87 dBm	-91 dBm	-94 dBm
Delay spread (at FER of <1%)	65 ns	225 ns	400 ns	500 ns

The range of the wireless signal is related to the transmit rate of the wireless communication. Communication at a lower transmit range may travel larger distances.

The previous table lists the typical ranges when used indoors in "office environments" that can be described as follows:

• In open office environments, antennas can "see" each other, i.e. there are no physical obstructions between them.

• In semi-open office environments, work space is divided by shoulder-height, hollow wall elements; antennas are at desktop level.

• In closed office environments, work space is separated by floor-to-ceiling brick walls.

Supported frequency sub-bands

Subject to the regulations that apply in your country, your PC Card may support a different set of 2.4 GHz (see table below). Consult an authorized reseller or Acer sales office for more information.

Frequency range	2400-2500 GHz			
Channel ID	FCC	ETSI	France	Japan
1	2412	2412	-	2412
2	2417	2417	-	2417
3	2422	2422	-	2422
4	2427	2427	-	2427
5	2432	2432	-	2432
6	2437	2437	-	2437
7	2442	2442	-	2442
8	2447	2447	-	2447
9	2452	2452	-	2452
10	2457	2457	2457	2457
11	2462	2462	2462	2462

When installing your InviLink PC Card, the channel configuration is managed as follows:

- For wireless clients that operate in an ORiNOCO infrastructure, the PC Card will automatically start operation at the channel identified by the access point. When roaming between different access points, the station can dynamically switch to another channel if required.

- For PC Cards installed into wireless clients that operate in "Peer-to-Peer" mode, the PC Card will use channel 10 by default.

- When inserted into the access point device, the PC Card will use the factory-set defulat channel unless the LAN administrator selected a different channel when configuring the access point device.